

Interagency Workshop on the Environmental Implications of Nanotechnology

Hotel Monaco
700 F Street, NW
Washington, DC

September 5-7, 2007

DRAFT AGENDA

DAY 1, Wednesday, September 5, 2007

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|---------------------------|---|
| 8:00 – 8:30 a.m. | Registration |
| 8:30 – 8:50 a.m. | Welcome
<i>Marcus Peacock (tentative), Deputy Administrator, U.S. Environmental Protection Agency (EPA)</i> |
| 8:50 – 9:10 a.m. | Nanotechnology Environmental and Health Implications (NEHI), National Nanotechnology Initiative (NNI) Research Needs
<i>Clayton Teague (tentative), Director, National Nanotechnology Coordination Office, Nanoscale Science, Engineering, and Technology Subcommittee, NEHI, NNI</i> |
| 9:10 – 9:30 a.m. | Department of Energy (DOE) Research User Facilities
<i>Ataf Carim, DOE</i> |
| 9:30 – 9:50 a.m. | National Science Foundation (NSF)
<i>Cynthia J. Ekstein (tentative), Bioengineering and Environmental Systems Division, NSF</i> |
| 9:50 – 10:05 a.m. | National Institute for Occupational Safety and Health (NIOSH)
<i>W. Allen Robison, Office of Extramural Programs, NIOSH</i> |
| 10:05 – 10:20 a.m. | National Institute of Environmental Health Sciences (NIEHS)
<i>Nigel Walker, National Toxicology Program (NTP), NIEHS</i> |
| 10:20 – 10:40 a.m. | BREAK |
| 10:40 – 11:10 a.m. | Office of Research and Development (ORD) Introduction
<i>George M. Gray, Assistant Administrator, ORD, EPA</i> |
| 11:10 – 11:30 a.m. | ORD Research Strategy
<i>Nora Savage, ORD, EPA</i> |

DAY 1, Wednesday, September 5, 2007 (continued)

11:30 – 1:00 p.m. ***LUNCH***

Metals, Metal Oxides

1:00 – 1:20 p.m. **The Fate, Transport, Transformation, and Toxicity of
Manufactured Nanomaterials in Drinking Water**
Paul Westerhoff, Arizona State University

1:20 – 1:40 p.m. **Pulmonary and Systemic Inhalation Toxicity of Multi-Walled
Carbon Nanotubes**
*Jacob McDonald, Lovelace Biomedical and Environmental Research
Institute*

1:40 – 2:00 p.m. **Biodistribution of Nanomaterials in Skin**
Nancy Monteiro-Riviere, North Carolina State University

2:00 – 2:20 p.m. **Health Effects of Inhaled Nanomaterials**
Kent Pinkerton, University of California

2:20 – 2:40 p.m. ***BREAK***

Metals, Metal Oxides (continued)

2:40 – 3:00 p.m. **Metal Nanoparticle Tissue Distribution following *In Vivo*
Exposures**
Alison Elder, University of Rochester

3:00 – 3:20 p.m. **The Bioavailability, Toxicity, and Trophic Transfer of
Manufactured ZnO Nanoparticles: A View From the Bottom**
Jason Unrine, University of Georgia

3:20 – 3:40 p.m. **Uptake and Toxicity of Metallic Nanoparticles in Freshwater Fish**
David Barber, University of Florida

3:40 – 4:00 p.m. **Acute and Developmental Toxicity of Metal Oxide Nanoparticles
to Fish and Frogs**
George Cobb, Texas Tech University

4:00 – 4:20 p.m. **Mechanistic Dosimetry Models of Nanomaterial Deposition in the
Respiratory Tract**
Bahman Asgharian, CIIT Centers for Health Research

DAY 1, Wednesday, September 5, 2007 (continued)

- 4:20 – 4:40 p.m.** **Short-Term Chronic Toxicity of Photocatalytic Nanoparticles to Bacteria, Algae, and Zooplankton**
C.P. Huang, University of Delaware
- 4:40 p.m.** **ADJOURN – DAY 1**

DAY 2, Thursday, September 6, 2007

- 8:30 – 8:40 a.m.** **Welcome**
- Metals, Metal Oxides (continued)***
- 8:40 – 9:00 a.m.** **Novel Nanostructured Catalysts for Environmental Remediation of Chlorinated Compounds**
Yunfeng Lu/Vijay John, University of California, Los Angeles
- 9:00 – 9:20 a.m.** **Responses of Lung Cells to Metals in Manufactured Nanoparticles**
John Veranth, University of Utah
- 9:20 – 9:40 a.m.** **A Toxicogenomics Approach for Assessing the Safety of Single-Walled Carbon Nanotubes in Human Skin and Lung Cells**
Mary Jane Cunningham, Houston Advanced Research Center
- 9:40 – 10:00 a.m.** **Microbial Impacts of Engineered Nanoparticles**
Delina Lyon, Rice University
- 10:00 – 10:20 a.m.** **An Integrated Approach Toward Understanding the Inflammatory Response of Mice to Commercially Manufactured CuO/Cu, Fe₂O₃/Fe and TiO₂ Nanoparticles**
Vicki Grassian, University of Iowa
- 10:20 – 10:40 a.m.** **BREAK**
- Metals, Metal Oxides (continued)***
- 10:40 – 11:00 a.m.** **Hysteretic Accumulation and Release of Nanomaterials in the Vadose Zone**
Tohren Kibbey, University of Oklahoma

DAY 2, Thursday, September 6, 2007 (continued)

Carbon-Based

- 11:00 – 11:20 a.m.** **Role of Particle Agglomeration in Nanoparticle Toxicity**
Terry Gordon, New York University School of Medicine
- 11:20 – 11:40 a.m.** **Chemical and Biological Behavior of Carbon Nanotubes in Estuarine Sedimentary Systems**
Lee Ferguson, University of South Carolina
- 11:40 – 12:00 p.m.** **Fate and Transformation of C60 Nanoparticles in Water Treatment Processes**
Jaehong Kim, Georgia Institute of Technology
- 12:00 – 1:20 p.m.** ***LUNCH***

Carbon-Based (continued)

- 1:20 – 1:40 p.m.** **Cross-Media Environmental Transport, Transformation, and Fate of Manufactured Carbonaceous Nanomaterials**
Peter Vikesland, Virginia Tech
- 1:40 – 2:00 p.m.** **Transport and Retention of Nanoscale Fullerene Aggregates in Water-Saturated Soils**
Kurt Pennell, Georgia Institute of Technology
- 2:00 – 2:20 p.m.** **Repercussion of Carbon-Based Manufactured Nanoparticles on Microbial Processes in Environmental Systems**
Ronald Turco, Purdue University
- 2:20 – 2:50 p.m.** ***BREAK***

Carbon-Based (continued)

- 2:50 – 3:10 p.m.** **Monitoring and Characterizing Airborne Carbon Nanotube Particles**
Judy Xiong, New York University School of Medicine
- 3:10 – 3:30 p.m.** **Physical and Chemical Determinants of Carbon Nanotube Toxicity**
Robert Hurt, Brown University

DAY 2, Thursday, September 6, 2007 (continued)

Carbon-Based (continued)

- 3:30 – 3:50 p.m.** **Assessment of the Environmental Impacts of Nanotechnology on Organisms and Ecosystems**
Dmitry Kopelevich, University of Florida
- 3:50 – 4:10 p.m.** **Structure-Function Relationships in Engineered Nanomaterial Toxicity**
Vicki Colvin, Rice University
- 4:10 – 4:30 p.m.** **Interactions of Pure and Hybrid Polymer Nanofibers With Cells**
Perena Gouma, State University of New York

Other Nanomaterials

- 4:30 – 4:50 p.m.** **Cellular Uptake and Toxicity of Dendritic Nanomaterials: An Integrated Physicochemical and Toxicogenomics Study**
Mamadou Diallo, California Institute of Technology
- 4:50 p.m.** ***ADJOURN – DAY 2***

DAY 3, Friday, September 7, 2007

- 8:30 – 8:40 a.m.** **Welcome**

Other Nanomaterials (continued)

- 8:40 – 9:00 a.m.** **Assessment Methods for Nanoparticles in the Workplace**
Patrick O'Shaughnessy, University of Iowa
- 9:00 – 9:20 a.m.** **Development of Nanosensors for the Detection of Paralytic Shellfish Toxins (PSTs)**
Robert Gawley, University of Arkansas
- 9:20 – 9:40 a.m.** **Transformations of Biologically Conjugated CdSe Quantum Dots Released Into Water and Biofilms**
Patricia Holden, University of California, Santa Barbara

DAY 3, Friday, September 7, 2007(continued)

Other Nanomaterials (continued)

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| 9:40 – 10:00 a.m. | Nanotechnology: A Novel Approach to Prevent Biocide Leaching
<i>Patricia Heiden, Michigan Technological University</i> |
| 10:00 – 10:20 a.m. | Evaluating the Impacts of Nanomanufacturing via
Thermodynamic and Life Cycle Analysis
<i>Bhavik Bakshi, The Ohio State University</i> |
| 10:20 – 10:40 a.m. | TBD |
| 10:40 a.m. | <i>MEETING ADJOURNMENT</i> |